and with levodopa in PT patients (72.7%, all p<0.05). **CONCLUSIONS:** A high and comparable level of compliance was observed across PD drugs. Persistence was significantly higher than other drugs with rasagiline in treatment-naïve patients and with levodopa in previously treated patients.

PND60

DISEASE-MODIFYING THERAPIES (DMT) FOR MULTIPLE SCLEROSIS (MS): ANALYSIS OF ITS EVOLUTION IN SPAIN BETWEEN 2004 AND 2012

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OBJECTIVES: To analyze determinants of recent evolution of DMT consumption for MS in Spain. **METHODS:** Available DMT market data comprised monthly figures for the period 2004-2012. Monthly and annual evolution of consumption, treated patients and annual cost of treatment were calculated for each DMT. This analysis was replicated for first-line (intramuscular and subcutaneous interferon (IFN) β-1a, subcutaneous IFN β-1b, and glatiramer acetate) and second-line therapies (natalizumab and fingolimod). Evolution of these variables was analyzed for both the whole period 2004-2012 and since 2007 (when second-line therapies become available in Spain). **RESULTS:** DMT expenditure in Spain increased by 147% in 2004-2012 (from €115.5M to €284.9M, 11.95% annually). This evolution can be decomposed into: the growth in the figure treated patients (126%; 10.70% annually) and the increase in the average annual cost per patient (9%, from €11,739 to €12,839; 1.13% annually). For 2007-2012 subperiod, DMT spending increased by 73% (11.57% annually) is attributable to 59% more treated patients (9.73% annually) and an increase of 9% (1.68%) in annual cost per patient. Cost per patient in second-line is 70% higher (average 2007-2012) than average cost per treated patient (€ 21,074 vs. € 12,372) and 82% higher than annual cost of first-line therapy (€ 21,074 vs. € 11,549). Between 2007 and 2012, second-line therapies accounted 32% of new treatments and 48% of incremental cost per patient. By omitting year 2007 from analysis (68 second-line treatments and €1.44M associated consumption), second-line therapies account for 38% of new treatments and 55% of incremental cost per patient. By 2012 second-line therapies already represent 50% of new treatments and 67% of DMT cost increase. **CONCLUSIONS:** The increase of patients treated with DMT in Spain (10.70% annually in 2004-2012), more costly new therapies incorporation and its growing consumption are crucial factors in handling hospital pharmacy budgets for prevalent diseases such as MS.

PND61

ASSOCIATION BETWEEN NON-MOTOR SYMPTOMS AND HEALTH CARE UTILIZATION AMONG PATIENTS WITH PARKINSON'S DISEASE IN THE UNITED STATES

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OBJECTIVES: To investigate the characteristics and extent of health care utilization among patients with Parkinson's disease (PD) with and without non-motor symptoms (NMS). **METHODS:** Data were obtained from a US administrative claims database (SDI/IMS). Index date was 1 June 2010, and study duration was 12 months. Patients were required to have at least two PD diagnoses before the index date. They were subsequently matched 1:1 to control patients (no PD diagnoses) based on propensity scores derived from age and pre-index Charlson comorbidity index for each gender. **RESULTS:** In total, 127,630 patients with PD were matched to controls. Patients with PD had higher annual mean numbers of primary care (16.4 vs 12.3; p ≤0.0001) and neurologist visits (6.7 vs 0.4; p ≤0.0001) compared with matched controls. In the PD group, 48,823 patients (38.3%) had a diagnosis for at least one NMS, of whom 15,242 (31.2 %) were also treated for at least one NMS. Most frequently reported NMS were pain (27.2%), mood disturbance (depression, anxiety or nervousness; 12.7%) and sleep disorder (7.4%). Patients with pain, mood and sleep disorders (n=1,159), had higher total annual primary care and neurologist visits than patients with no NMS (50.7 vs. 17.2). Patients who received treatment for pain, mood and sleep disorders (n=118), had a higher total number of annual primary care and neurologist visits (66.6) compared with patients treated only for mood (26.0; n=3,233) only for pain (35.6; n=9,432), or only for sleep (30.6; n=676). **CONCLUSIONS:** Results of the study demonstrate that treatment of NMS increases health care utilization – patients with PD suffering from NMS had a substantially greater number of health care visits than those with no NMS. Results also indicate that there are substantial levels of undertreatment of NMS among patients with PD, with less than a third being treated.

PND62

NATALIZUMAB TREATMENT IS ASSOCIATED WITH REDUCED NEUROLOGY OUTPATIENT APPOINTMENTS, UNPLANNED HOSPITAL ADMISSIONS AND LENGTH OF STAY

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OBJECTIVES: Global wellbeing of patients is an important outcome in research and clinical practice. Multiple Sclerosis (MS) is a degenerative, neurological condition, characterised by progressive disability, affecting approximately 110 per 100,000 people in England and Wales. Natalizumab is a humanised monoclonal antibody, licensed for use in highly active relapsing-remitting MS and administered as an IV infusion every 28 days. The purpose of this study was to explore the impact of natalizumab on both patients and use of health service resource in clinical practice in England. **METHODS:** Health Episode Statistics (HES) data were used to perform a retrospective cohort study. A structured coding search elucidated a comprehensive list of natalizumab users by hospital trust. Analysis of health service usage, including outpatient appointments and admissions, was undertaken. Comparison of use during the year before and after treatment initiation was conducted. **RESULTS:** A total of 2,196 patients with at least 1 year of available HES data after treatment initiation were identified. In this cohort, natalizumab treatment was associated with 38% fewer unplanned admissions (981 vs. 604, X_1^2 = 89.2, p<0.001) and 58% fewer unplanned bed nights (8,817 vs. 3,681, X_1^2 = 2109.8, p<0.001) in the year following treatment initiation compared with the year before. A 14% reduction in all outpatient appointments was also observed, due principally to a 25% reduction in neurological outpatient appointments (from 7,826 to 5,901, X_1^2 = 269.7, p<0.001). Evidence from this study indicates that duration of treatment is a significant factor in this response; patients receiving between 12 and 14 doses (n=1,122) experienced 70% reduction in unplanned admissions and 90% reduction in unplanned bed nights. **CONCLUSIONS:** Our data support the notion that natalizumab treatment significantly reduces unplanned hospital treatment and outpatient attendance.

PND63

PRESCRIBING PATTERNS OF PARKINSON'S DISEASE

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OBJECTIVES: Parkinson's disease has the second largest number of patients among 56 designated diseases/syndrome of the Specified Disease Treatment Research Programme for rare and intractable disease programme. The purpose of this study were to investigate prescribing patterns of Parkinson's disease and its pharmaceutical expenditures. **METHODS:** We analysed the Social Health Insurance (SHI) claims data processed from February to April 2011 provided by the Planning, Review and Research Institute for Social Insurance and Medical Program. **RESULTS:** During the three months, 52,851 patients in Social Health Insurance programme received medical treatments that cost 9,391,451,520 JPY. Average costs for inpatient care without meal expense and for outpatient care were 263,782 JPY and 33,209 JPY respectively. Except the cases that fell into Diagnosis Procedure Combination (DPC), 37% of the total cost, 3,515,091,420 JPY was for pharmaceutical expenditure including dispensing fee. Only 7,437,873 (23.5%) of 31,699,153 dispensed drugs were generics on a volume basis. If all the pharmaceutical that have generics had been substituted, estimated 899,586,280 JPY would have been saved in the study period by simple arithmetic. Generic usage is fewer in the elderly than in the younger generation in all therapeutic categories. **CONCLUSIONS:** Percentage of pharmaceutical expenditure in total health expenditure for Parkinson's disease is high. Our study find that generic substitution rate is low in general and even lower in the elderly. This might be partly related to the medical expense subsidy under the Specified Disease Treatment Research Programme, which exempts eligible patients from co-payment according to their income. There seems to be a room for prescribing pattern change for cost optimization and further study is expected.

PND64

COSTS OF FORMAL AND INFORMAL HOME CARE AND QUALITY OF LIFE OF PATIENTS WITH MULTIPLE SCLEROSIS IN SWEDEN

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OBJECTIVES: To describe and to estimate costs of formal and informal home care and quality of life related to multiple sclerosis. **METHODS:** A random sample of 1500 members of the Swedish organization for patients with neurological diseases (NHR), specifically MS, were mailed a questionnaire between February-March 2012. Collected data included number of hours per month of home care received, type of help, productivity losses, quality of life (EQ-5D) and disease characteristics. The recall period was one month. Using published Swedish unit cost data, the costs for home care were estimated in 2012 euros. A semi-logarithmic linear regression evaluated other factors that may influence the likelihood of getting home care. **RESULTS:** Of 839 respondents, 65.5% had progressive MS, 24.5% had RRMS and 10% had no information. Formal care was given to 27% of respondents at an average of 238.7 hrs/month at a mean cost of €2873 per person with MS per month. Informal care was received by 49% of respondents at an average of 47.3 hrs/month at a mean cost of €389 per person with MS per month. Based on disease severity, the mean total home care costs/patient/month were: mild (EDSS 0-3) = €63, moderate (EDSS 4-6) = €461 and severe (EDSS > 6.5) = €8446. Total home care costs were three-fold higher in persons with moderate MS and seven-fold higher in persons with severe MS versus mild MS. Total home care costs of patients cohabiting with another person were nearly 70% higher compared to people living alone. The reported average utility was 0.513 (sd 0.307). Utilities across disease severity: mild MS=0.709 (sd 0.233), moderate MS=0.562 (sd 0.232) and severe MS=0.284(sd 0.283). **CONCLUSIONS:** Total home care costs, of which formal care costs accounted for a large proportion, increased with increasing disease severity. Informal caregiving contributes significantly to MS home care and is an important complement to formal home care in Sweden.

PND65

A COMPARISON OF DEMOGRAPHIC AND CLINICAL VARIABLES OF DOWN SYNDROME PATIENTS IN UTAH AND THE UNITED STATES

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OBJECTIVES: To explore the demographics, comorbidities and medication exposure of Down Syndrome (DS) patients in Utah compared to a national cohort. **METHODS:** National and local data on adult patients with DS were extracted from the General Electric Healthcare National Clinical Data Services Warehouse and the University of Utah Healthcare System Enterprise Data, respectively. The ICD-9 code for Down Syndrome (758.0) was used to identify patients, alive through 2012, and their associated comorbidities and prescribed medications. We used descriptive statistics, *t*-test, test of proportion and Fisher's exact test to examine relationships between demographics, comorbidities and pharmacotherapies and compared results between local and national cohorts. **RESULTS:** Data was extracted on 513 patients in Utah and 11,736 nationally, 98% and 64% of patients are adults in cohorts, respectively. Through 2012, adult DS patients in Utah were younger (37 vs. 39, p<0.005), more likely to be female (54.08% vs. 50.47%, p<0.05)

and more likely to be Caucasian (64.61% vs. 41.53%, p<0.001) than national cohort patients. DS patients in Utah suffered significantly more comorbidities: autism (6.43% vs. 1.12%, p<0.001), heart problems (2.53% vs. 0.57%, p<0.001), blood and blood-forming problems (14.81% vs. 10.05%, p<0.001), epilepsy (7.02% vs. 2.23%, p<0.001) and arthritis (28.46% vs. 10.68%, p<0.001). Higher proportions of Utah patients used ulcer drugs (21.64% vs. 16.83%, p<0.005), majority PPIs (85.6%); antidepressants, (17.93% vs. 11.55%, p<0.001), majority SSRIs (79.3%); analgesics-NSAIDs (15.59 % vs. 11.13%, p<0.005), majority NSAIDs (98.8%); multivitamins (16.18% vs. 9.02%, p<0.001), and fluoroquinolones (10.53% vs. 7.45%, p<0.01) than the national cohort. **CONCLUSIONS:** The Utah DS population differs from the comparative U.S. Cohort in demographics, comorbidities and medications. These results will be incorporated into the development of a Quality of Life scale to value new treatments in Down Syndrome.

PND66

TREATMENT PATTERNS FOR PARKINSON'S DISEASE: REAL-WORLD EVIDENCE FROM THE EU5 (FRANCE, GERMANY, ITALY, SPAIN, AND THE UNITED KINGDOM)

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OBJECTIVES: To assess the distribution of initial Parkinson's Disease (PD) treatment, along with time to and reasons for changes in therapy. **METHODS:** Adelphi Real-World Disease-Specific-Programme (DSP) cross-sectional PD data from January 2011 to February 2012 were analyzed. The DSP surveyed 299 physicians in the EU5 who completed PD patient reviews (≥10 each). Kaplan-Meier estimation was used to evaluate times from initial monotherapy to follow-up therapy by treatment. Reasons for adding or switching drug classes were documented as efficacy-related, levodopa-related (dyskinesia or on-off fluctuations), due to side-effects, and/or other reasons. **RESULTS:** Of the 3,351 patients included, 60% were male; mean age at treatment initiation was 65 years; 55% had mild Hoehn & Yahr severity scores (≤2.5); and 59% initiated treatment on monotherapy. Overall, Dopamine Agonists (DA) were the most common first-line monotherapy (45%; mean age 62 years), followed by Levodopa (39%; 71 years), Monoamine-oxidase-B Inhibitors (MAOB) (14%; 62 years), and Other (2%; 64 years). The median time to change from DA monotherapy was 36 months. Levodopa was the first choice add-on (16%) and switch from (5%) DA monotherapy. Reasons for change to Levodopa were efficacy-related (92% add-on; 70% switch patients). The median time to change from Levodopa monotherapy was 54 months. DA was the first choice add-on (13%) and switch from (1.4%) Levodopa monotherapy. Reasons for change to DA were efficacy-related (86% add-on; 82% switch patients). The median time to change from MAOB monotherapy was 12 months. DA was the first choice add-on (32%) and switch from (6%) MAOB monotherapy. Reasons for change to DA were efficacy-related (95% add-on; 94% switch patients). **CONCLUSIONS:** This EU5 sample represents a levodopa-sparing treatment strategy, favoring initiation with DA for younger patients. Initial treatment with Levodopa monotherapy was of longer duration than that with DA or MAOB. Physicians predominantly reported efficacy-related reasons for treatment changes.

URINARY/KIDNEY DISORDERS – Clinical Outcomes Studies

PUK1

ANALYSIS COST EFFECTIVENESS OF PHARMACOLOGICAL PROPHYLAXIS OF CONTRAST-INDUCED NEPHROPATHY

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OBJECTIVES: Analyze the cost-effectiveness of the prophylaxis (n-acetylcysteine 1200mg 4 oral-doses+1/6M bicarbonate 500ml IV) of the contrast-induced nephropathy (CIN) at risk patients. The CIN is usually reversible, but may affect 50% of patients with some risk factors (diabetes, age...) and may favor the progressive renal damage. **METHODS:** Retrospective observational study. The population were patients candidates at prophylaxis protocol CIN in a university hospital during 2012 (5142 patients). We calculated a sample size of 115 patients for a confidence level of 90%, an error of 7.5% and a frequency of CIN equal 40% . CIN was considered as the relative elevation of serum creatinine greater than or equal to 25% during the 48 hours after the test. For the economic analysis were used acquisition-costs of drugs, and the hemodialysis costs described by Lorenzo et al (Nephrology2010,30(4):404-412). We consider, according to literature that at least 35% of risk patients affected by NIC would require a hemodialysis session. **RESULTS:** Of the patients who received prophylaxis, 3 had CIN and 93 no. Of those who received no prophylaxis 5 had CIN, and 14 no. We did a Fisher Test being the difference in favor of the protective effect of the protocol statistically significant (p <0.01). The prophylaxis would have prevented 25.26 CIN. The prophylaxis costs per patient were € 2.29 . The cost of a hemodialysis sessions was € 423. Then € 220.42 has been invested to avoid a minimum of € 3739.74 on hemodialysis. (16.9 € savings per euro spent on prophylaxis. Each avoided NIC had cost € 8.73.) **CONCLUSIONS:** The economic analysis is difficult because of the diversity of data about CIN. We chose a cost-minimization model, considering minor treatment needs found in the literature. In any case this prophylaxis is highly cost-effective and should be considered before introducing other methods.

PUK2

COST EFFECTIVE USE OF URINE SAMPLING AND DIPSTICK TESTING TO DIAGNOSE URINARY TRACT INFECTIONS IN PRE-SCHOOL CHILDREN PRESENTING TO PRIMARY CARE

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OBJECTIVES: Diagnosis of urinary tract infection (UTI) in young children is difficult. Prompt treatment could alleviate short-term symptoms and prevent serious long-term sequelae, but over-treatment will increase antibiotic resistance. We evaluated the cost-effectiveness of a UTI risk score based on signs, symptoms and dipstick test findings compared to clinical judgement in guiding urine sampling and antibiotic treatment. **METHODS:** We developed a risk score based on urine samples collected (by clean catch or nappy pad) in a multicentre diagnostic cohort study (DUTY) of 7,163 children <5 years presenting to primary care. The diagnostic value of symptoms, signs and dipstick test results were evaluated against a reference standard of urine culture results from a research laboratory. We constructed decision-analytical models comparing the cost-effectiveness of 3 DUTY risk score thresholds (high sensitivity, high specificity or intermediate) versus clinical judgement in younger (nappy pad) and older (clean catch) children. We explored the role of the dipstick in guiding diagnosis. We considered health service costs and patient utilities during the initial diagnosis, acute illness and long-term sequelae. **RESULTS:** The 'high specificity' DUTY threshold resulted in fewer urine samples than clinical judgement (4.8% vs. 9.2%) with similar sensitivity (58.6% vs. 57.1%) and higher specificity (96.1% vs. 91.4%). The difference in short-term net benefits between DUTY thresholds was small (range £1088 'high sensitivity' to £1091 'high specificity'). In younger children (nappy pads) the distinction in cost-effectiveness between the DUTY risk score and clinical judgement was not clear-cut. Dipstick tests could potentially expedite therapy in higher risk children. **CONCLUSIONS:** Clinicians can reduce prescriptions and provide more cost effective care by using the DUTY risk score. Clean catch samples should be obtained whenever practical. Low UTI prevalence, imperfect NHS laboratory tests and an uncertain link between UTI and long-term sequelae mean that conservative sampling strategies may be most appropriate.

PUK3

COMPARISONS OF THE CLINICAL EFFECTIVENESS OF TREATMENTS FOR THE SYMPTOMS ASSOCIATED WITH OVERACTIVE BLADDER (OAB)

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OBJECTIVES: This research was carried out during a review of the manufacturer's submission (MS) to the NICE Single Technology Appraisal programme for the selective beta$_3$-adrenoceptor agonist, mirabegron. Antimuscarinics are the mainstay of treatment for the symptoms of OAB. They may be used at different doses and in different formulations (immediate release [IR] or extended release [ER]). However, there is limited evidence on their comparative clinical effectiveness with each other. This research evaluated the available evidence for mirabegron, antimuscarinics, and placebo. **METHODS:** Randomised controlled trials (RCTs) for inclusion were identified using the MS for mirabegron. RCTs were assessed for comparability based on diagnosis, patient population, treatment regimen, and with outcomes reported at 12 weeks. Mixed treatment comparison (MTC) using Bayesian Markov Chain Monte Carlo simulation was used to perform a meta-analysis of a network of RCTs. Summary statistics used were mean difference (MD) for continuous outcomes and odds ratio (OR) for dichotomous outcomes. **RESULTS:** Of the 40 RCTs identified in the MS, 22 met the criteria for inclusion in the analysis. No statistically significant differences in frequency of micturition were identified between any of the active treatments. Compared with mirabegron 50mg, statistically significant differences in the remaining outcomes assessed, were: fewer incontinence episodes, MD (solifenacin 5mg -0.39, 95%CI: -0.72 to -0.06; solifenacin 10mg -0.38, 95%CI: -0.69 to -0.07); increased risk of constipation , OR (fesoterodine 8mg 2.12, 95%CI: 1.13 to 3.64; solifenacin 5mg 2.11, 95%CI: 1.16 to 3.59; solifenacin 10mg 4.52, 95%CI: 2.60 to 7.47; trospium 60mg 7.63, 95%CI: 2.12 to 22.95); increased risk of discontinuation, OR (oxybutynin 15mg IR 2.67, 95%CI: 1.60 to 4.22). Mirabegron was associated with significantly lower risk of dry mouth than all other active treatments. **CONCLUSIONS:** None of the treatments assessed for OAB have a consistently superior efficacy with a reduced risk of adverse events.

PUK4

CONTINUOS RENAL REPLACEMENT THERAPY VERSUS INTERMITTENT HEMODIALYSIS: SYSTEMATIC REVIEW ON PATIENT-ORIENTED OUTCOMES

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OBJECTIVES: Acute renal failure is responsible for about 1% of hospital admissions, and occurs in up to 7% of hospitalized patients and up to 20% of patients admitted to intensive care units (ICU's). When it is severe enough to require dialysis, in-hospital mortality rate ranges from 50% to 75% and is also increases risk for chronic and terminal kidney diseases. Continuous Renal Replacement Therapy (CRRT) in its various forms has theoretical advantages over conventionally done Intermittent Hemodialysis (IHD) at significantly higher costs, but these advantages attributed to CRRT have not yet been consistently proven in terms of clinical outcomes in controlled trials. **METHODS:** We have made a literature search in PubMed to identify systematic reviews and randomized controlled trials that studied patient-oriented outcomes (mortality and renal recovery). **RESULTS:** We have found five systematic reviews published in 2007 and 2008 and conducted our own metanalysis on six trials published from 2001 to 2009 (no clinical outcomes oriented trial has been published since them). None of the reviews that directly compared CRRT to IHD have shown statistically significant advantages of any of them regarding in-hospital or ICU mortality or renal function recovery We have analyzed six randomized no-blinded clinical trials that met eligibility criteria of evaluating patient-oriented outcomes including 1151 patients. Five of them had high to moderate GRADE scores. None have shown absolute risk reduction of in hospital, ICU or at 60 days mortality or statistically significant renal recovery rates. Overall mortality relative risk of CRRT over IHD was 1,01 (95%CI: 0,92 – 1,11). We found moderate heterogeneity and no publication bias. **CONCLUSIONS:** Clinical trials published until October 2012 have shown no difference in patient-oriented outcomes between the uses of CRRT and IHD techniques in adult patients admitted to intensive care units with acute renal failure and requiring renal replacement therapy.